



STANDARD OPERATING PROCEDURE

COAL HANDLING SYSTEM

MDPCL-OMH-SOP-01-008

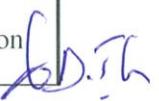
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Approved by Team Leader: Duong Thuc Son

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Revision No.	Description	Revision Date	Prepared by	1st Reviewed by	2nd Reviewed by
0	First Issue	15-Oct-2018	Nguyen Thi Phuong		
1	First revise	22-Oct-2019	Ban Trung Hung	Doan Van Lieu	Nguyen Van Tan
2	Second revise	09-Dec-2024	Luong Minh Tam	Nguyen Cong Son	Duong Thuc Son



REVISION HISTORY

No.	Date of revision	Description of change	Reviewed by	Approved by
2	09-Dec-2024	<p>- Check Local or Remote status of VCB and ACB of Conveyor before stop.</p> <p>- Immediately stop if there is an emergency.</p> <p>-In any case Telescopic chute of Tripper car cannot go down, the CBO must receive coal pile not higher than 19m (normally 20m) ,The purpose is to keep the pile of coal not too full and high so that the Relaimer cannot move through</p>	Luong Minh Tam	Duong Thuc Son

1. PURPOSE AND SCOPE

The purpose of this document is to provide a systematic guideline to operate the Coal Handling System consist of:

- Receiving coal from Vinacomin to Coal Shed A/B by: CV01A/B, CV02A/B, CV03A/B, Tripper car 01A/B.
- Reclaiming coal from Coal Shed A/B to Silo of Unit #1 & Unit #2 by: Reclaimer 01A/B, CV04A/B, CV05A/B, CV06A/B, Tripper car 02A/B, Siloes.
- Receiving coal from Vinacomin to Silo of Unit #1 & Unit #2 by: CV01A/B, CF01A/B, CV05A/B, CV06A/B, Tripper car 02A/B, Siloes.
- There are vendor systems: Belt Scale, Sampling system, Magnetic Separator, Metal Detector.

2. DEFINITION AND ABBREVIATIONS

CCR	Central Control Room	VNCM	Vinacomin
DCS	Distributed Control System	MCC	Motor Control Cubicle
CV	Conveyor	ACB	Air Circuit Breaker
RE	Reclaimer	VCB	Vacuum Circuit Breaker
SS	Sampling System	HMI	Human Mechanical Interface
BS	Belt Scale	CHS	Coal Handling System
MD	Metal Detector	PLC	Program Logic Control
MS	Magnetic Separator	DG	Diverter Gate
DC	Dust Collector	BTND	Conveyor of Vinacomin
CF	Coal Feeder	TR	Tripper car
PPE	Personal protect equipment		

3. PRECAUTION

Job	Hazard	How to Eliminate Hazard
Operating electric system	Power supply system (400V,11KV): electric shock, short circuit, fire, electric leakage	<ul style="list-style-type: none"> - Use PPE proper - Only authorize person is inside area - Check electric system: connect wires, ground wire sure tight
Operating system	Rotating parts: Clamp long hair, hand, clothes	<ul style="list-style-type: none"> - Check leak water at electric room, leak oil at equipment
	Collision confined space	<ul style="list-style-type: none"> - Check sure have cover rotating part
	Splash materials	<ul style="list-style-type: none"> - Have warning indication
	Leak, spill materials	<ul style="list-style-type: none"> - Check system and install cover
	Hot surface of reducer,	<ul style="list-style-type: none"> - Check system and supply load no exceed

	coupling, bearing	1200 tons/h
	Coal dust	- Use 3M mask, run dust suppression system
	Slip platform	- Check platform and clear all waste, material, oil, grease around system.

A. RECEIVING COAL FROM VINACOMIN TO COAL SHED A/B

PROCEDURE INSTRUCTIONS

ACTIVITY/ TASK	ACTION	RESPONSIBLE	REMARK
I. Check prestart up	1. Check power supply at electric room of CHB coal handling <ul style="list-style-type: none"> • ACB status of CV01A/B,02A/B,03A/B are ready operating • MCC status of Tripper car 01A/B, thruster brakes Magnetic separator 01A/B, Sampling system 01A/B, dust suppression system are ready operating • Belt scale 01A/B 	Operator	
	2. HMI <ul style="list-style-type: none"> • Check status of CHS on HMI and reset all faults before starting up • Check power supply status • Check and record coal totalizer of Belt scales 01A/B and Vinacomin before starting up • Contact VNCM person about receiving coal schedule 	CBO	
	3. Local side <ul style="list-style-type: none"> • Only authorize person is inside working area • Clear all coal at discharge chute CV01A/B, CV02A/B, CV03A/B, Diverter gate DG 01A/B, 02A/B, Telescopic chute 01A/B, tilt switches (A,B,C,D) of telescopic chute • Clear all waste around equipment, on platform • Reset all pull cord switches • Check oil reducer: leak, level oil • Check grease at push idlers, bearing, coupling, plumber block, back stop • Check motors of conveyors, thruster brake 	Operator	



	<ul style="list-style-type: none">• Check and clear all dust at V_Scrapers, Primary and Secondary cleaners• Check Tripper 01A/B• Check and record coal totalizer of Belt scales 01A/B and Vinacomin before starting up• Check position of coal stack• Check belt surface: tear, misalignment belt• Check fire protection system is already operating• Check dust suppression system• Check sampling system• Check Magnetic Separator		
II. Operation system	Select mode of operating: + Automatic mode + Manual mode + Local mode		
1. Automatic mode	1. Conditions required to operate the automatic mode: <ul style="list-style-type: none">• Reset all faults on HMI before start up	CBO	
	2. Startup sequence. <ul style="list-style-type: none">• Step 1: Contact VNCM about schedule startup system• Step 2: Arrange local persons check system when start up• Step 3: Record totalizer of BS01A/B, BS of VNCM before startup• Step 4: Select auto mode for operating: Mode 1 or Mode 2 or Mode 3 or Mode 4 as attachment 1• Step 5: Travelling Tripper 01A/B to position for stacking coal pile by manual mode• Step 6: Go down Telescopic chute 01A/B : distance with surface of coal pile $\geq 1m$ by manual mode• Step 7: Switch all CV01A/B, CV02A/B, CV03A/B, DG01A/B, DG02A/B, MS01A/B, SS01A/B Ventilation 01,02 => automatic mode• Step 8: Contact local persons startup• Step 9: Push start button on HMI when system will auto running following PLC• Step 10: Contact VNCM: System already receiving coal.• When telescopic chute auto go up at 20m: go up telescopic chute at home position	CBO	- CBO and Local operator will: -Check status system when system startup -Check load no exceed 1200 tons/h - Local operator check system: abnormal about vibration, noise, hot surface, leak, spill, splash, misalignment belt

	<ul style="list-style-type: none"> →travelling TR01A/B forward or reverse 2m → go down telescopic chute • Start up dust suppression system • Start up SS01A/B system <p>3. Stop sequence</p> <ul style="list-style-type: none"> • Contact VNCM stop conveyor BTND05/ BTND06 • When empty coal on conveyor CV03A/B: push stop button on HMI, system will auto stop following PLC→ go up telescopic chute at home position by manual mode • Stop dust suppression system • Record totalizes receiving coal at BS 01A/B and BS VNCM • Note: The conveyor will stop automatic when any safety interlock signal is active. • Note: In a case emergency stop: all the system will automatically stop when one of the singles is active: <ul style="list-style-type: none"> + Push Stacking operation EMG stop button + Push Master EMG stop button + Fire alarm detection + Tripper car TR01A/B EMG. Tilt switch + Tripper car malfunction alarm 		
2. Manual mode	<p>1. Conditions required to operate the manual mode: Reset all faults on HMI before start up</p> <p>2. Startup sequence</p> <ul style="list-style-type: none"> • Step 1: Contact VNCM about schedule startup system • Step 2: Arrange local persons check system when start up • Step 3: Record totalizer of BS01A/B and BS of VNCM before startup • Step 4: Switch all CV01A/B, CV02A/B, CV03A/B, Tripper 01A/B, DG01A/B/ DG02A/B, MS01A/B, SS01A/B Ventilation 01,02 => manual mode • Step 5: Travelling Tripper 01A/B to position for stacking coal pile • Step 6: Go down Telescopic chute 01A/B : distance with surface of coal pile $\geq 1m$ • Step 7: Contact local persons startup • Step 8: Start up as below: 	CBO	<p>Local persons check coal on conveyor and status system when stop</p> <p>CBO</p> <p>- Check Local or Remote status of VCB and ACB of Conveyor before stop.</p> <p>- Immediately stop if there is an emergency.</p> <p>CBO and Local operator will:</p> <p>-Check status system when system startup</p> <p>-Check load no exceed 1200 tons/h</p> <p>- Local operator check system: abnormal</p>

	<ul style="list-style-type: none"> ⊕ Mode 1: CV 03A→Ventilation 01→DG01A left →MS01A→CV01A ⊕ Mode 2: CV 03A→Ventilation 01→DG01B left →MS01B→CV01B ⊕ Mode 3: CV03B→ Ventilation 02→ DG02A left→CV02A→DG01A right →MS01A→ CV01A→ Ventilation 01 ⊕ Mode 4: CV03B→ Ventilation 02→ DG02B left→CV02B→DG01B right →MS01B→ CV01B→Ventilation 01 • Step 9: Contact VNCM: System already receiving coal. • When telescopic chute auto go up at 20m: go up telescopic chute at home position →travelling TR01A/B forward or reverse 2m → go down telescopic chute • Start up SS01A/B system • Start up dust suppression system 		about vibration, noise, hot surface, leak, spill, splash, misalignment belt
	<p>3. Stop sequence</p> <ul style="list-style-type: none"> • Contact VNCM stop conveyor BTND05/ BTND06 • When empty coal on conveyor CV03A/B: stop sequence as below: <ul style="list-style-type: none"> ⊕ Mode 1: CV01A→MS01A→CV03A→ Ventilation 01 ⊕ Mode 2 : CV01B→MS01B→CV03A→ Ventilation 01 ⊕ Mode 3 : CV01A→MS01A→CV02A→CV03B→ Ventilation 01,02 ⊕ Mode 4 : CV01B→MS01B→CV02B→CV03B →Ventilation 01,02 • Go up telescopic chute 01A/B at home position. • Stop dust suppression system • Record totalize receiving coal at BS 01A/B and BS VNCM • Note: The conveyor will stop automatic when any safety interlock signal is active. • Note: In a case emergency stop: all the system will automatic stop when one of the singles is active: <ul style="list-style-type: none"> +) Push Stacking operation EMG stop button +) Push Master EMG stop button +) Fire alarm detection 	CBO - Check Local or Remote status of VCB and ACB of Conveyor before stop. - Immediately stop if there is an emergency.	Operator check coal on conveyor and status system when stop

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	+) Tripper car TR01A/B EMG.Tilt switch +) Tripper car malfunction alarm		
3. Local mode	1. Conditions required to operate the local mode: Some safe interlock signals are not action. Only pull cord switch and emergency button are active. Thus operator has to responsibility sure safety for human and equipment. At local mode can run independence, single each conveyor. Thus, only use when maintenance		
	2. Start/Stop Each equipment has a local control panel: For running equipment: push start button For stopping push stop button Note: in a case emergency stop: push emergency stop or pull pull cord switch.	Operator	

***Attention:** In any case Telescopic chute of Tripper car cannot go down, the CBO must receive coal pile not higher than 19m (normally 20m)
The purpose is to keep the pile of coal not too full and high so that the Reclaimer cannot move through.

B. RECLAIMING COAL FORM COAL SHED A/B TO SILO OF UNIT#1 & UNIT #2

PROCEDURE INSTRUCTIONS

ACTIVITY/ TASK	ACTION	RESPONSIBLE	REMARK
I. Check pre startup	1. Check power supply at electric room of coal handling <ul style="list-style-type: none"> • ACB status of CV04A/B are ready operating • MCC status of Tripper car 02A/B, Magnetic separator 02A/B, Sampling system 02A/B, dust suppression system, DC 01,02, 03, CV06A/B, thruster brakes are ready operating • VCB status of CV05A/B are ready operating • Power supply for Reclaimer are ready operating • MD01A/B system, belt scale 02A/B 	Operator	
	2. HMI <ul style="list-style-type: none"> • Check status of CHS on HMI and reset all faults before starting up • Check power supply status • Check and record coal totalizer of Belt scales 02A/B before starting up 	CBO	

	<ul style="list-style-type: none"> • Check level silo <p>3. Local side</p> <ul style="list-style-type: none"> • Only authorize person is inside working area • Clear all coal at discharge chute CV04A/B, CV05A/B, CV06A/B, Diverter gate DG 04A/B, 05A/B. • Check level silos • Check and record coal totalizer of Belt scales 02A/B before starting up • Clear all waste around equipment • Reset all pull cord switches • Check oil reducer: leak, level oil • Check grease at push idlers, bearing, coupling, plumber block, back stop • Check motors of conveyors, thruster brake • Check and clear all dust at V_scrapers and Primary and Secondary cleaners • Check Tripper 02A/B, RE 01A/B • Check coal pile for supply • Check belt surface: tear, misalignment belt • Check fire protection system is ready operating • Check dust suppression system • Check sampling system • Check Magnetic Separator • Check MD01A/B • Check DC01,02,03 system 	Operator	
II. Operation system	Select mode of operating: + Automatic mode + Manual mode + Local mode		
1. Automatic mode	<p>1. Conditions required to operate the automatic mode:</p> <ul style="list-style-type: none"> • Reset all faults on HMI before start up <p>2. Startup sequence.</p> <ul style="list-style-type: none"> • Step 1: Arrange local persons check system when start up • Step 2: Record totalizer of BS02A/B before startup • Step 3: Select auto mode for operating: Mode 5 or Mode 6 or Mode 9 or Mode 10 as attachment 1 • Step 4: Travelling Tripper 02A/B to position silo need to supply by manual mode • Step 5: Switch DG05A/B to right to silo by manual mode 	CBO	CBO and operator will: -Check status system when system startup -Check load no exceed 1200 tons/h

	<ul style="list-style-type: none"> • Step 6: Setup % level for siloes and select siloes for supply • Step 7: Switch all CV04A/B, CV05A/B, CV06A/B, Tripper 02A/B, DG04A/B/ DG05A/B, MS02A/B, DC01,02,03, SS02A/B ,Ventilation 03,04,05 => automatic mode • Step 8: Contact local persons startup • Step 9: Push start button on HMI when system will auto running following PLC • Step 10: Start up RE01A/B (by local operator) • Start up dust suppression system • When level silo reach % level setup, DG05A/B auto switch to right then traveling TR02A/B to next silo position is selected then DG05A/B will auto switch to left • Startup SS02A/B system • Startup dust suppression system 		<p>-Check level siloes and Position of TR02A/B avoid spill coal</p> <p>-Local operator check system: abnormal about vibration, noise, hot surface, leak, spill, splash, mis-alignment belt</p>
	<p>3. Stop sequence</p> <ul style="list-style-type: none"> • Stop RE 01A/B (by local operator) • When empty coal on conveyor CV06A/B: push stop button on HMI, system will auto stop following PLC • Stop dust suppression system • Record totalize supply coal at BS 02A/B • Note: The conveyor will stop automatic when any safety interlock signal is active. • Note: In a case emergency stop: all the system will automatic stop when one of the singles is active: <ul style="list-style-type: none"> + Push Silo feeding operation EMG stop button + Push Master EMG stop button + Fire alarm detection + Selected silo level high high + Tripper car TR02A/B chute plugged switch + Metal detected MD01A/B 	CBO <p>- Check Local or Remote status of VCB and ACB of Conveyor before stop.</p> <p>- Immediately stop if there is an emergency.</p>	Local persons check coal on conveyor and status system when stop
2. Manual mode	<p>1. Conditions required to operate the manual mode: Reset all faults on HMI before start up</p>		
	<p>2. Startup sequence.</p> <ul style="list-style-type: none"> • Step 1: Arrange local persons check system when start up • Step 2: Record totalizer of BS02A/B before startup 	CBO	CBO and Local operator will:

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	<ul style="list-style-type: none"> • Step 3: Travelling Tripper 02A/B to position silo need to supply by manual mode • Step 4: Switch DG05A/B to left by manual mode • Step 5: Setup % level for siloes • Step 6: Switch all CV04A/B, CV05A/B, CV06A/B, Tripper 02A/B, DG04A/B, DG05A/B, MS01A/B, => manual mode SS02A/B , Ventilation 03,04,05, DC 01,02, 03 => auto mode • Step 7: Contact local persons startup • Step 8: Start up as a line below: <ul style="list-style-type: none"> ➡ TR02A→CV06A→MS02A→CV05A→DG 04A left→CV04A→RE01A ➡ TR02B→CV06B→MS02B→CV05B→DG0 4A right→CV04A→RE01A ➡ TR02B→CV06B→MS02B→CV05B→DG0 4B right →CV04B→RE01B ➡ TR02A→CV06A→MS02A→CV05A→DG 04B left→CV04B→RE01B • Step 9: Start up RE01A/B (By operator) • Start up dust suppression system • Ventilation 03,04,05, DC 01,02,03, MD01A/B will auto run following PLC when conveyor system run • When supply enough coal in silo: travelling TR02A/B to next silo following forward or reverse • Startup SS02A/B system 		-Check status system when system startup -Check load no exceed 1200 tons/h -Check level siloes and Position of TR02A/B avoid spill coal - Local operator check system: abnormal about vibration, noise, hot surface, leak, spill, splash, mis-alignment belt
	<p>3. Stop sequence</p> <ul style="list-style-type: none"> • Stop RE01A/B (by local operator) • When empty coal on conveyor CV06A/B: stop sequence as a line below: <ul style="list-style-type: none"> ➡ CV04A→ CV05A→ MS02A →CV06A ➡ CV04A→ CV05B→ MS02B→CV06B ➡ CV04B→ CV05B→ MS02B→CV06B ➡ CV04B→ CV05A→ MS02A→CV06A • Ventilation 03,04,05, DC 01,02,03, MD01A/B will auto stop following PLC when conveyor system stop • Stop dust suppression system • Record totalize supply coal at BS 02A/B • Note: The conveyor will stop automatic when any safety interlock signal is active. 	CBO - Check Local or Remote status of VCB and ACB of Conveyor before stop. - Immediately stop if there is an emergency.	Local persons check coal on conveyor and status system when stop

	<ul style="list-style-type: none"> • Note: In a case emergency stop: all the system will automatic stop when one of the singles is active: <ul style="list-style-type: none"> +) Push Silo feeding operation EMG stop button +) Push Master EMG stop button +) Fire alarm detection +) Selected silo level high high +) Tripper car TR02A/B chute plugged switch +) Metal detected MD01A/B 		
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C. RECEIVING COAL FROM VINACOMIN TO SILO OF UNIT#1 & UNIT#2

PROCEDURE INSTRUCTIONS

ACTIVITY/ TASK	ACTION	RESPONSIBLE	REMARK
I. Check pre start up	1. Check power supply at electric room of CHB coal handling <ul style="list-style-type: none"> • ACB status of CV01A/B are ready operating • MCC status of Tripper car 02A/B, Magnetic separator 01,02 A/B, Sampling system 01,02A/B, CV06A/B, CF01A/B, Dust collector DC 01,02, 03, dust suppression system are ready operating, thruster brakes are ready operating • VCB status of CV05A/B are ready operating • MD 01A/B system 	Operator	
	2. HMI <ul style="list-style-type: none"> • Check status of CHS on HMI and reset all faults before starting up • Check power supply status • Check level siloes • Check and record coal totalizer of Belt scales 01, 02 A/B and Vinacomin before starting up • Contact VNCM person about receiving coal schedule 	CBO	
	3. Local side <ul style="list-style-type: none"> • Only authorize person is inside working area 	Operator	



	<ul style="list-style-type: none">• Clear all coal at discharge chute CV01A/B, CV05A/B, CV06A/B, CF01A/B, Tripper 02A/B, Diverter gate DG 01,02,03,05A/B• Clear all waste around equipment• Reset all pull cord switches• Check oil reducer: leak, level oil• Check grease at push idlers, bearing, coupling, plumber block, back stop• Check motors of conveyors, thruster brake• Check and clear all dust at V_scrapers, Primary and Secondary cleaners• Check Tripper 02A/B• Check level siloes• Check and record coal totalizer of Belt scales 01, 02 A/B and Vinacomin before starting up• Check belt surface: tear, misalignment belt• Check fire protection system is already operating• Check dust suppression system• Check sampling system• Check Magnetic Separator• Check dust collector DC01,02,03		
II. Operation system	Select mode of operating: + Automatic mode + Manual mode + Local mode		
1. Automatic mode	1. Conditions required to operate the automatic mode: <ul style="list-style-type: none">• Reset all faults on HMI before start up 2. Startup sequence. <ul style="list-style-type: none">• Step 1: Contact VNCM about schedule startup system• Step 2: Arrange local persons check system when start up• Step 3: Record totalizer of BS01,02A/B, BS of VNCM before startup• Step 4: Select auto mode for operating: Mode 7 or Mode 8 or Mode 11 or Mode 12 as attachment 1• Step 5: Travelling Tripper 02A/B to silo for supply by manual mode• Step 6: Switch DG05A/B to right by manual mode and setup % level of Siloes• Step 7: Switch all CV01A/B, CF01A/B, CV05A/B, CV06A/B, Tripper 02A/B, DG01A/B, DG02A/B, DG03A/B, DG05A/B	CBO	
		CBO	CBO and local operator will: -check status system when system startup. -Check load no exceed 1200 tons/h -Check level siloes and Position of TR02A/B avoid spill coal

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	<ul style="list-style-type: none"> Record totalize receiving coal at BS 01,02A/B and BS VNCM Note: The conveyor will stop automatic when any safety interlock signal is active. Note: In a case emergency stop: all the system will automatic stop immediately when one of the singles is active: <ul style="list-style-type: none"> Push Silo feeding operation EMG stop button Push Master EMG stop button Fire alarm detection Selected silo level high high Tripper car TR02A/B chute plugged switch Metal detected MD01A/B 	
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❖ Attachment 1:
